

NEWS TODAY

Report “The strategic role of data centers in empowering India’s digital revolution” Released

The joint report by ASSOCHAM and PwC highlights role of **Data Centres in advancing India’s digital landscape.**

About Data Centre & their Significance

- Data Centre is a **dedicated secure space** where computing and networking equipment is concentrated for the purpose of collecting, storing, processing, distributing or allowing access to large amounts of data.
- **Significance**
 - ⊖ **Key enablers to the digital revolution in India**, transforming Government services, enabling remote work and education and Fostering start-up innovation.
 - ◆ Indians will consume the most data in the world by 2028, ahead of developed markets such as the US.
 - ⊖ Integration of emerging technologies such Artificial intelligence (AI), internet of things (IoT) etc. into different services.
 - ⊖ Facilitating **data localisation** by enhancing storage facility.

Key Challenges

- Data centre are **mainly concentrated** in cities like Mumbai, Chennai, etc.
- **Complex regulatory frameworks** including land acquisition, environmental clearances etc.
- **High operational expenses** due to high power consumption, infrastructure maintenance etc.

Key Recommendations

- **Regulatory Compliance:** It can be done through Practices like audit trails, data governance, etc.
- **Increased investment in R&D:** Developing efficient technologies to reduce power consumption.
- **Other:** Create a data centre ecosystem in Tier 2 cities, etc.

Initiatives taken to promote Data Centre Ecosystem

- **Digital India (2015):** Provides for enhanced online infrastructure and internet connectivity.
- **Draft Data Centre Policy (2020):** Seeks to promote domestic manufacturing of data centre-related products.
- **Other:**
 - ⊖ **National Informatics Centre (NIC)** has set up state-of-the-art National Data Centres
 - ⊖ Government has accorded **infrastructure status to data centres** (with more than 5 MW capacity of IT load)
 - ⊖ **State’s policies** like Maharashtra’s IT and ITES Policy 2023 offers benefits to the data centre industry.
 - ⊖ India’s first hyperscale data centre ‘**Yotta D1**’ has been set up in Greater Noida, Uttar Pradesh.

Economic Survey 2023-24 highlighted an increase in Mental Health Issues among Indians

Mental health is a **state of mental well-being enabling people to cope with stresses of life**, realize their abilities, learn and work well, and contribute to their community.

Prevalence of Mental Health Issues

- According to survey, **10.6% of adults in India suffer from mental disorders**, while treatment gap for mental disorders ranged between 70 to 92% for different disorders. (National Mental Health Survey 2015-16).
- **Higher rates of mental health issues in urban areas** as compared to rural areas and urban non-metro regions.
- In 2019, **one in every eight people** (or 970 million people globally) were living with a mental disorder. (WHO)

Factors affecting Mental Health

- **Poverty** via stressful living conditions, financial instability, and lack of employment opportunities.
- **Rise in nuclear family, leads to psychological issues in elders** due to lack of support system.

Impact

- **Reduced concentration** among children’s (37%), due to overuse of smartphone, internet. (NCPDR)
- **Reduce productivity** in academics due to anxiety, mood swings etc.
- **Rising healthcare costs** places an **increased burden on poor households.**

Suggestions to tackle Mental Health Issues

- **Increase number of psychiatrists**, from 0.75 psychiatrists per lakh population in 2021 to 3 per lakh population (WHO norm).
- Advocating for a **bottom-up strategy** engaging communities comprehensively.

Initiatives taken to promote Mental Health

India

- **Tele Mental Health Assistance and Networking Across States** (Tele- MANAS).
- **Manodarpan**, to provide psychosocial support to students during COVID-19 and beyond.
- **National Mental Health Programme** to ensure availability and accessibility of minimum mental healthcare for all.

Global

- **Adoption of Paro Declaration**, to provide universal Access to People-centred Mental Health Care and Services.
- **Mental Health Gap Action Programme** by WHO to scale up services for mental, neurological and substance use disorders.

Food and Agriculture Organization (FAO) released State of the World's Forests 2024 Report

Theme for this year: "Accelerating forest solutions through innovation".

Key highlights

- **Deforestation Rate declined** to 10.2 million hectare (ha) per year in 2015–2020 from 15.8 million ha per year in 1990–2000.
 - ⊕ India ranked 3rd for average **annual net gain in forest area** from 2010- 2020.
- **Non-Timber Forest Products support livelihoods** of about 275 million people in India.

Need for Innovation in Forest Sector

- **Climate change related stress (wildfire, pest):** Innovative forest and land management strategies needed for resilience.
- **Shift towards bioeconomy:** Zero-carbon bioeconomy needs innovation for diverse, efficient wood-based product uses.
- **Opportunity from non-wood forest product:** Many wild forest-based foods, including fish, are rich in micronutrients and have high nutritional content.

Five types of innovation enhancing potential of forests and trees to address global challenges

- **Technological:** Remote-sensing & cloud computing generate high-quality forest data, thereby, improve forest management processes. **E.g.,** NASA and ESA's Landsat and Copernicus programs.
- **Social, Policy and Institutional: All interrelated and dynamic innovations** to better engage women, youth and Indigenous People. **E.g.,** **India's Joint Forest Management Programme** mandates 1/3rd **female representation on committees.**
- **Financial:** Innovations to enhance value of standing forests, boost restoration efforts, etc. **E.g.** Innovations like **SCRIPT (Soft Commodity Risk Platform).**

Barriers to development of innovations in forest sector

- **Lack of innovation culture** discouraging curiosity, creativity and risk-taking.
- **Capital limitations** like human (deficient skill); natural (limited access to forest); social (restricted tenure rights), etc.
- **Lack of policy support** impacting technology adoption.

Recommendations to scale up innovation

- **Recognizing and rewarding innovation** can help foster conducive culture.
- **Boost skills, capabilities and knowledge** to ensure that forest-sector stakeholders have capacity to manage innovation creation and adoption.
- **Provide opportunities for knowledge and technology transfer,** and build appropriate safeguards.
- **Ensure universally accessible** financial resources.

International NOvA collaboration reveals new finding on Neutrinos

The NOvA experiment is helping scientists to study the properties of neutrinos.

- **NovA (NuMI Off-axis ve Appearance)** is located in United States and few Indian Institutes are also part of it.

Key Finding

- **Neutrinos come in three varieties:** muon, electron and tau.
- New NOvA results suggest there are **two lighter neutrinos** and a **heavier one** (Normal Order Theoretical Model).

About Neutrino

- In 1930, physicist Wolfgang Pauli hypothesized the existence of a particle like the neutrino.
- **Nature:** A type of **subatomic particle** and don't have electric charge and have a small mass.
 - ⊕ **Second-most** abundant particles after **photons** (particles of light) and the most abundant among particles that make up matter.
- **Detectability:** Difficult to detect as they interact rarely with other particles.
 - ⊕ Also known as **Ghost Particle.**
- **Neutrino oscillation:** In it, a neutrino born as one flavor (electron, muon, or tau neutrino) will eventually morph into the other varieties as it travels.
 - ⊕ **E.g.,** Electron neutrinos emitted by the Sun transform into muon and tau neutrinos as it reaches earth.
- **Sources:** Produced when particles called leptons interact with matter.
 - ⊕ It can be obtained from both natural (Cosmological neutrinos (the Big-bang), etc.) and man-made (Reactor neutrinos (during fission), etc.) sources.

Key Significance of Studying Neutrinos

- **Studying Universe:** Neutrinos help to understand how the universe was formed and its functions now.
- **Future communication:** As neutrinos pass through most matter untouched, they can carry information across large distances.

Key Observatories

- Indian Neutrino Observatory (INO)
 - ⊕ Jointly funded by **Department of Atomic Energy and the Department of Science and Technology.**
 - ⊕ **Location:** Bodi West hills of **Theni District of Tamil Nadu.**
- **China's TRIDENT** (Tropical Deep-sea Neutrino Telescope)
- **IceCube:** The world's largest neutrino telescope

Economic Survey recommends sustainable fertiliser subsidy Mechanism

Economic Survey highlighted issues in **current design of fertiliser subsidy** in India and recommends ways to improve it

Current Design of Fertilizer Subsidy

- Union Government, based on recommended dose of nutrient data provided by states, calculates the **Recommended Dose of Fertiliser (RDF)** and allocates fertilisers to States for each season.
- States, in turn, sell the fertiliser to the farmers through dealers and **primary agriculture cooperative societies** using point of sale (POS) devices.
- Based on the quantity of fertilisers sold to farmers, the Department of Fertilisers pays fertiliser subsidies to the fertiliser companies.

Issues in Current System

- PoS devices **not integrated** with **land records**.
- Fertilizer can be **purchased by anyone with Aadhaar**, leading to misuse.
- **No limits** on quantity per person/family.
- Financial and **ecological impacts** due to overuse, non-agricultural use, and public resource wastage.
 - ⊕ Urea accounts for over 82% of **nitrogenous fertilisers**, leading to **imbalanced NPK** (nitrogen, phosphorus, and potassium ratios), from 4:3.2:1 in 2009-10 to 7:2.8:1 in 2019-20.
 - ⊕ This fertilizer consumption imbalance leads to Soil quality deterioration and health hazards.

Key Recommendation

- **Improving** Fertilizer targeting using **Agri Stack**, a digital platform to integrate stakeholders and improve agricultural outcomes.
 - ⊕ Ensuring subsidised fertilisers are sold to identified farmers based on land ownership and crops.
 - ⊕ Deciding adequate quantity based on parameters like land and crop data; etc.
- **Promoting use of E-RUPI**, a seamless one-time payment mechanism can provide the necessary subsidy to the farmer directly.

Economic Survey 2023-24: Current Global Approach to deal with climate change is flawed

Survey highlighted that current global approach ignores inter-connected nature of existence.

How Global Approach is flawed?

- **Inadequate funding: Only USD 100 billion** was pledged by developed countries till 2020, far short of **~USD 6 trillion** which developing countries need by 2030 to meet half of their climate targets.
- **Ignore Per capita Emissions data:** E.g., India, world's third-largest emitter, is urged to take greater responsibility, despite its **low per capita emissions** & cumulative historical contribution (1850-2019) i. e. 4 % of global emission.
- **Overestimate Probabilities:** Nuclear energy is cleanest and safest option, but **public fear of rare accidents** hinders its adoption. E.g. Chernobyl and Fukushima disaster.
- **High Energy Demanding Technologies:** Rich countries are ramping up energy infrastructure, especially for artificial intelligence which is more energy-demanding.

India's Progress on climate action

- **Created Carbon Sink** of about **1.97 billion tonnes of CO₂** equivalent between 2005- 2019.
 - ⊕ India to make an **additional carbon sink of 2.5 to 3.0 billion tonnes** through tree and forest cover **by 2030**.
- **Target to reduce emissions intensity** of India's GDP was **enhanced to 45%** (from 33-35%) by 2030 from 2005 level.
- **Mission LiFE** focuses on bringing about behaviour changes in individuals for combatting climate change.

Suggestions

- Developing countries like **India need to follow its own path** since they are tasked with **balancing developmental goals with meaningful climate action**.
- Global movement on climate change must be **accommodative of sovereign choices and economic needs**, but centered on individual behavior.

Also in News



Green Climate Fund (GCF)

GCF approves several projects in developing countries including a project in India (**Financing Mitigation and Adaptation Projects (FMAP)**)

About FMAP

- It is an initiative of Small Industries Development Bank of India (SIDBI).
- It will extend loan to MSMEs, for projects such as renewable energy, energy efficiency, energy storage and e-mobility.

About Green Climate Fund

- It is the world's largest dedicated climate fund.
 - ⊕ Established under the Cancún Agreements in 2010.
- **Mandate** is to foster a paradigm shift towards low emission, climate-resilient development pathways in developing countries.
- Operating entity of the financial mechanism of the United Nations Framework Convention on Climate Change (UNFCCC).



Graphite

Coal India Limited got its first critical-mineral asset, a **graphite block** in Madhya Pradesh.

About Graphite

- **Graphite is crystalline allotropes of carbon.** Other carbon allotropes include **Diamond** and **Fullerene**.
- **Natural graphite** available in three forms- **amorphous, flake, and crystalline vein graphite**.
- **Properties:** It is **non-metal** but has **many properties of metals**.
 - ⊕ **Good conductor of electricity.**
 - ⊕ **High natural strength and stiffness.**
 - ⊕ **Corrosion-resistant** against most common acids (e.g. hydrochloric acid).
 - ⊕ **High natural lubricity** and one of the **lightest of all reinforcing agents**.
- **Applications:** As anode material in lithium-ion battery; lubricants; pencil, source material for graphene, etc.

World Intellectual Property Organization (WIPO)

Atal Innovation Mission (AIM) and WIPO signed a Letter of Intent towards building joint innovation programs in global south.

- ▶ AIM is Government of India's **flagship initiative to promote a culture of innovation and entrepreneurship** in country and was setup in 2016 under NITI Aayog.

About WIPO (HQ: Geneva, Switzerland)

- ▶ Established in 1967, it is the **United Nations (UN)** agency aims to **encourage creative activity**, to promote **protection of intellectual property** throughout the world.
- ▶ It currently has **193 member states (India is a member)**.
- ▶ All member states of UN are entitled, though not obliged, to become members of specialized agencies.

Global Capability Centres (GCCs)

India's growing reputation as the preferred destination for GCCs by multinational corporations has significantly boosted services exports.

About GCCs

- ▶ Also known as **Global In-house Centers or Captive Centers**,
- ▶ These are established by organizations worldwide to make use of global talent, resources, and expertise.
- ▶ They are typically **part of larger corporations** and provide a range of services such as research and development, IT services, business process outsourcing etc.
- ▶ GCCs provide **access to specialized talent, cutting-edge technology**, etc. empowering businesses to compete globally.

Probiotic

Scientists have uncovered a new strain of lactic acid bacterium that could be a promising probiotic for food and pharmaceutical industry.

About Probiotic

- ▶ Probiotics are **live microorganisms (bacteria and yeasts)** that are intended to have health benefits when consumed or applied to body.
- ▶ **Lactobacillus acidophilus (probiotic bacteria) naturally occurs in human gut** and other parts of body. It **helps digestive system to break down sugars** like lactose into lactic acid.
- ▶ They can be **found in yogurt and other fermented foods, dietary supplements**, and beauty products.
- ▶ **Benefits:** Improving intestinal tract health; Help body to **maintain healthy community of microorganisms**; stimulate systemic immune response etc.

Clarion-clipperton Zone (CCZ)

India will apply for licences from **International Seabed Authority (ISA)** to explore deep-sea minerals in Clarion-clipperton Zone of Pacific Ocean for Critical Minerals.

About Clarion-clipperton Zone:

- ▶ It is a region spanning 5,000 kilometers across the **central Pacific Ocean**, at depths of 4,000 – 5,500 meters.
- ▶ It is a vast area between **Hawaii and Mexico**, rich in **polymetallic nodules**.
 - ⊖ Polymetallic nodules are a potential mineral resource for copper, nickel, cobalt, iron, manganese, and rare earth elements.
 - ⊕ These minerals are essential for electric vehicles and solar panels, including manganese, nickel, copper, and cobalt.

Curiosity Rover

NASA's Curiosity rover discovers yellowish-green crystals of **pure (elemental) sulfur** on Mars.

- ▶ **Curiosity's mission (2011) was launched** to study where and when the planet's ancient terrain could have provided the nutrients needed for microbial life.

About Discovery:

- ▶ **Sulfur** is a key ingredient for life and is one of the six building blocks, along with **carbon, hydrogen, nitrogen, oxygen, and phosphorus**.
 - ⊖ Presence of Sulfur on Mars suggests possibilities of life-bearing conditions.
- ▶ It's one of several discoveries Curiosity has made while driving within Gediz Vallis channel.
 - ⊕ **Gediz Vallis channel** is near **Mount Sharp**, the base of which the **rover has been ascending since 2014**.

Greenium (or green premium)

Indian sovereign green bonds hardly received any **Greenium** from private investor's according to Economic Survey 2023-24.

- ▶ **Green bonds** are debt instruments that fund specific projects/activities categorised as 'green' under national or international green taxonomies

About Greenium

- ▶ It refers to **pricing benefits** based on the logic that investors are willing to pay extra or accept lower yields in exchange for sustainable impact (United Nations Development Programme (UNDP)).
- ▶ It is the additional cost of choosing a clean technology over one that emits more greenhouse gases.

Places in News

Liberia (Capital: Monrovia)

Group of senators in Liberia has proposed to relocate its Capital city due to recurring flash floods.

Political features

- ▶ Located along the **coast of western Africa**.
- ▶ **Land Boundaries:** Sierra Leone (northwest), Guinea (north), Côte d'Ivoire (east).
- ▶ **Maritime Boundary:** Atlantic Ocean (south and west).

Geographical features

- ▶ **Highest Point:** Mount Wuteve.
- ▶ **Major rivers:** Mano, Lofa, St. Paul etc.
- ▶ **Climate:** Tropical; Hot, humid; dry winters with hot days.
- ▶ **Natural resources:** Iron ore, timber, diamonds, gold etc.

